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June, 1957

Volume 34, No. 6



Allis-Chalmers HD-21 SIEGEL COAL CO., Clarion

OLD BITUMINOUS

Production had fallen and his mine wouldn't pay. Old Bituminous was in a terrible way. The trouble, though bad, was not hard to find his equipment was of the very wrong kind.

Then along with a bright and sunshiny day come the equipment expert direct from Highway. He explained in detail how there'd never be better shovels and tractors than Lima and A-C.

CLARK & KRCHMAR COAL CO.,

Zo old Bituminous bought himself a few "Merely to see what they could really do." and wolched with delight as profits reached their goal. Then he put them to work stripping his coal It's surely not surprising that throughout his mine Bituminous is now using the full Highway line. "Mhat we did for him, we can do for you as well." And neither is it surprising when we tell,







6465 HAMILTON AVE. . PITTSBURGH 6, PA.

Allis-Chalmers • Lima Shovels, Cranes, Draglines • Master General Motors Diesel Engines • Power-Pack Conveyors Gar Wood • Lima Roadpackers • Burmeister Mixers and Bins Michigan Tractor Shovels and Excavator-Cranes Thor • Jaeger



YOU CAN STRIP OVERBURDEN AND RECLAIM LAND PROFITABLY

with this crawler tractor-scraper team

There is a marked trend toward reclaiming worked-out pits—and a parallel trend toward the use of Allis-Chalmers crawler tractors and scrapers. Both are examples of wise management.

Land Reclamation—already a law in many states—eliminates to a large extent the scarred and worthless landscapes left by abandoned pits and piles of overburden. Properly reclaimed land usually returns far more than the cost of reclamation in higher resale value. Even where pits can be only partially filled, the land may be seeded profitably for pasture.

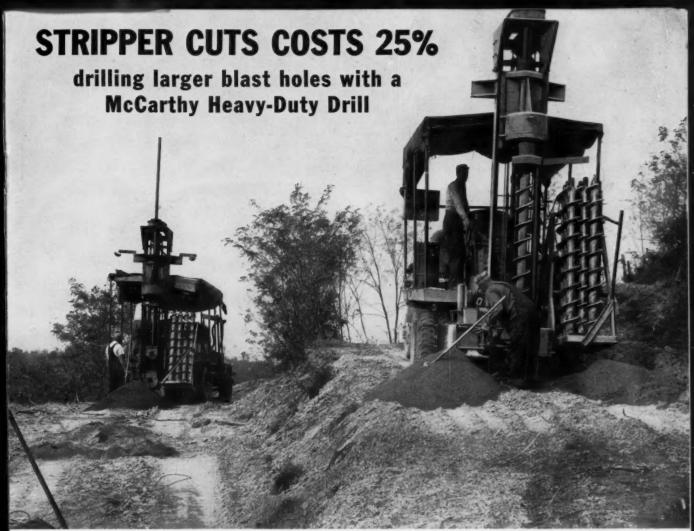
Allis-Chalmers HD-21 Crawler Tractor and 315 Scraper are ideal for this type of operation.

This team is mobile and flexible enough to strip overburden and spread it immediately in a workedout area of the pit. This eliminates the need of rehandling overburden and of calling in specialized equipment.

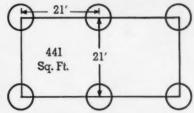
Curved and offset cutting edge on the scraper, plus torque converter drive on the tractor, are just two of many features that put this Allis-Chalmers team in a class by itself for this type of work. Let your Allis Chalmers construction machinery dealer give you the details. Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.

ALLIS-CHALMERS

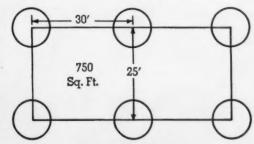
Engineering in Action



This strip mine operator cut drilling and blasting costs 25% by using this 25'x 30' pattern of 8 in. blast holes—drilled by two McCarthy Heavy-Duty Vertical Auger Drills.



ORIGINAL PATTERN 6 in. holes



NEW PATTERN 8 in. holes

A Southern Ohio strip mine operator cut his drilling and blasting costs by 25% when he widened the blast hole pattern and switched from 6 in. diam. to 8 in. diam. holes. He used McCarthy Heavy-Duty Vertical Auger Drills and a new type of explosive to remove the sandstone overburden.

A cost study made by the operator shows that the McCarthy drill bored the 8 in. holes at less cost than the 6 in. holes. Four 6 in. diam. holes covered 441 sq. ft. Four 8 in. holes covered 750 sq. ft. Since fewer 8 in. holes were required to drill the same area, over-all drilling time was cut in half. In each pattern, the amount of hard rock drilling was the same. The study included five work shifts of two McCarthy Model 106-24 Auger Drills, one using 6 in. and the other using 8 in. flights. The stripper figured all drilling and blasting costs, including fuel, labor, bits, explosives, etc. Over-all cost saving was 25%.

McCarthy Heavy-Duty Vertical Auger Drills drill up to 24 in. diam. holes faster than any other auger drill. Start cutting your costs now by phoning the nearest Salem Tool representative. Or write for Bulletin M-100.

in. holes

Manufacturer of Drilling Equipment Since 1901

THE SALEM



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Want higher productivity— Get both with LONG



New Long Model 88-C Pigloader*

For Piggyback* Conveyor Mining Overall Operating Height—25¾ inches Weight—14,000 pounds.

These new Pigloaders feature low operating height, simplified design and operation, minimum maintenance, and full independent crawler control. The single 40 HP electric motor drives all machine operations, with power transmitted to various functions through a simple combination of gear and chain drives. All functions are controlled hydraulically from a single bank of fingertip

New Long Model 188-C Pigloader

For Shuttle Car Loading

Overall Operating Height—26½ inches Weight—15,000 pounds.

control valves. Maximum digging power results from application of extremely heavy duty gathering transmissions, plus the ability to employ the full 40 HP for this as well as other operations. Rated capacity—4 to 6 tons per minute; tramming speed—95 feet per minute; conveyor chain—heavy duty, 58,000 pounds ultimate strength.

*Trade Marks Reg. U. S. Pat. Off.



Long Piggyback Bridge Conveyors

The LONG Piggyback is the original "bridge" conveyor, with basic features patented. Because it eliminates lost time for shuttle car changes, Piggyback mining assures continuous haulage and a high percentage of loading time—whether utilized with conventional loaders or with continuous mining machines. The PT-15-B (illustrated) is especially suitable for use with the 88-C Pigloader. For low s.ams, the new LONG PT-18 Piggyback has a receiving height of only 11".



New Long Mobile Hydraulic Coal Drill

Coal drilling becomes a one-man operation with the new LONG Mobile Hydraulic Coal Drill. Two lightweight aluminum drills are available—the 1-M-20 (one-man, 20 pounds) for drilling average holes and the 1-M-30 (one-man, 30 pounds) for larger holes or drilling in hard coal. 12-20 seconds is required to drill the average hole WITH ONE MAN. The self-tramming hydraulic power unit designed for these drills also can be used with a trailer for supply haulage or conveyor pan movement.



Long Mobile Room and Gathering Conveyors

The LONG Mobile Conveyor reduces moving time by as much as 60 per cent. Because the conveyor drive is crawler mounted and self-tramming, one man can relocate it in minutes. Tramming speed—45 fpm, capacity—5 tons per minute, and operating length—more than 400 feet. Available in Model M-400 (open-type pan track return) and M-500 (solid-type recirculating pan track return) with pan widths of 12 and 15 inches and pan depths of 5, 7 and 9 inches. The M-500 series eliminates fine coal accumulation under the pan line, and cleaning up after this conveyor is unnecessary.



New Long Battery Tractor-Truck

Equipped with U.S.B.M. permissible approval plate, the new LONG Model D-2375 travels at a speed of 4 miles per hour and can quickly move trailers carrying sufficient supplies for an entire working shift, plus the men, to the section. Available in machine heights of 26" or 30", it incorporates explosion-proof U.S.B.M. approved type electrical equipment with full magnetic control, and two-speed operation in each direction.

lower operating costs?

EQUIPMENT

FOR

Continuous loading... Mobile conveyor mining



Side-Lift Type-Model 2374



Straddle Type-Model D-2111

New Long Conveyor Pan Transporters

Designed specifically for application of the LONG Piggyback Conveyor System to continuous mining, these pan transporters permit quick, easy additions to the room chain conveyor to keep pace with rapid advances by continuous mining machines. The straddle type, powered by two U.S.B.M. permissible 5 HP motors, can transport at one time six or seven conveyor pans (each 6'long), plus tail piece. Powered by one permissible 10 HP motor, the side-lift type has two side-lifting booms for transporting three conveyor pans, plus tail piece, to extend the room conveyor. Also included with this model is a hydraulic driven winch with 150 feet

of wire rope.



Long 400-DBH Skid-Mounted Conveyor

High capacity transportation is provided by the LONG 400-DBH, 15-inch room and gathering conveyor, designed for LONG Piggyback Conveyor Mining. Furnished with 5", 7" or 9" deep pans the 400-DBH offers capacity to 300 tons per hour in maximum lengths of 500'. Standard chain speed is 196 fpm.



Long Type 640 Elevating Conveyor

Provides high-capacity transportation as either a shuttle car elevator or an elevating conveyor in the LONG Piggyback Mining System. It offers the strongest chain and flight combination in an underground elevating conveyor, and its 10%" height makes it desirable for receiving shuttle car loads. Open or permissible type electrical equipment.

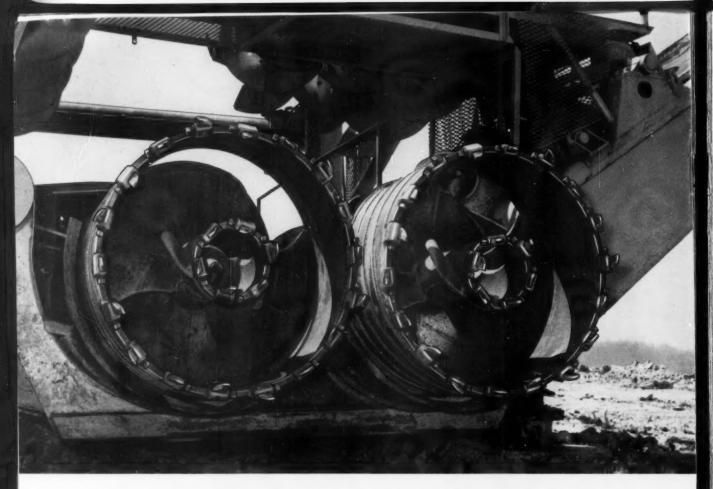
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Please send details on the complete line of LONG Equipment

Company

Address City_



Twin Head auger for thin seams...a new, exclusive Compton of Clarksburg first

FEATURES and SPECIFICATIONS

- Length: 29 feet
- Weight: 26 tons
- Augers: Carries 24—12½ ft. sections
- Power: 1-175 HP and 1-100 HP diesel engines
- Hydraulic Frame Jack Lift: 54 inch
- Auger Diameter: Two heads 24" to 32" each
- Drilling Depth: 150 feet
- Drills within 4¾" of the bottom for maximum recovery.
- Auger sections are racked conveniently on the frame.
- Elevating conveyor is integral part of machine.
- Hydraulic jack legs (with self-leveling pontoons) permit drilling up to 150 feet without misalignment.
- Double vertical overlapping holes can be drilled for greater recovery. Moves easily along working face of highwall.

Here's the new look in augers—the Compton "TWIN HEAD"—it makes thin seam mining feasible and profitable for the first time! Shoulder to shoulder the "TWIN HEAD" cuts, bores and spews forth high hourly tonnage from seams so thin they were once not suitable, nor profitable, for mining with the single headed coal augers.

Write, or call, to have a Compton sales engineer stop around and give you all the facts concerning the new "TWIN HEAD" or one of its "big brothers."



WHEN LOOKING FOR AUGERS-LOOK TO COMPTON



COAL

Vol. XXXIV

JUNE, 1957

No. 6

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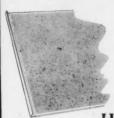


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Manitowoc Engineering Corp. has recently published a booklet titled "More Profitable Coal Mining with Manitowoc", outlining a variety of operations that employ Manitowoc shovels and draglines.

In addition to giving details of actual coal mining operations in which Manitowoc units are in use, the bulletin outlines the exclusive engineering features that make Manitowoc a faster, more economical and more powerful stripping and loading unit.

This attractive and informative booklet may be obtained from your Manitowoc dealer, or by writing direct to Manitowoc Engineering Corp., Manitowoc, Wisconsin. A new fold-out specification sheet (MS-1192) covering the Allis-Chalmers HD-16 Diesel powered crawler tractor is now available from the Construction Machinery Division, Allis-Chalmers Manufacturing Co., Milwaukee, Wis. It features a cutaway view of the tractor that shows both the geartype and the hydraulic torque converter drive transmissions, and many of the mechanical, design and construction highlights of the HD-16.

The torque converter drive, which Allis-Chalmers introduced into the crawler tractor field in 1940, is also reviewed along with its numerous use advantages.

SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS

Made To Withstand High Drilling Speed, Whip and Torsional Strain Of Electric Drills

Drille holes faster - Will not anap off shank or chip points - Outlasts four or five ordinars auger-

THE SALEM TOOL COMPANY

SALEM, OHIO, U.S. A

Published monthly by Modern Mining Publishing Company. Publication Office—Advance Printing & Litho Co., Erie, Pa. Editorial and Executive Offices. Erie, Pa. Pittsburgh Office: P. F. JASIK. Publisher. 4575 Country Club Drive, Pittsburgh 36, Pa. Price: In the United States, \$3.00 year: all other countries \$5.00. Single copy 25 cents. Entered as second class matter at the Post Office at Erie, Penna., under the act of March 3, 1879.

Don

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IT COULD HAPPEN TO YOU









EXCHANGE PLAN No. 2: You Profit When You Buy New Rollers for Your Caterpillar Track-Type Tractors

Actually you are getting one roller free in each complete set of new Caterpillar rollers you buy from Beckwith under this plan because we allow you a flat 10 per cent "trade-in" for each Old Cat roller you bring in to be replaced. Substantial stocks of genuine factory-built rollers are carried under our careful system of inventory control. These are new, improved-design track rollers with thorough lubrication, efficient sealing and wear-resisting heat treatment. Down-time is minimized because you may bring in your old rollers after you have installed the new ones. Remember, there's no difference between the rollers you get on new machines and the new Caterpillar rollers you buy as replacement parts—all bear the same mark of Cat quality and probably came off the same assembly line. Use our Exchange Plan and be safe.

"PUT A <u>CATERPILLAR</u> ROLLER ON THIS TIME. IN THE FUTURE I'LL ALWAYS USE CAT PARTS!"



Roller Exchange PLANS

SAVE MONEY! 'BE SURE! with Genuine Parts!



EXCHANGE PLAN No. 1: When You Buy Beckwith-Rebuilt Caterpillar Rollers Savings Increase

Many of our friends have asked for good rebuilt rollers that they could trust for installation on their older but still productive Caterpillar track-type tractors. Savings up to one-third the cost of new rollers can be realized under Beckwith's Roller Exchange Plan #1. You bring in your used Cat rollers to one of our shops where they are inspected on the spot. You will receive a "trade-in" allowance for each accepted roller, in purchasing the same number of Beckwith-Rebuilt Rollers for replacement. Our carefully trained personnel use special equipment to turn out rebuilt rollers with unusual long life characteristics and other original standards. This plan means you can obtain substantial savings at no risk by buying our rebuilt rollers at a very reasonable price.

PARTS YOU CAN TRUST

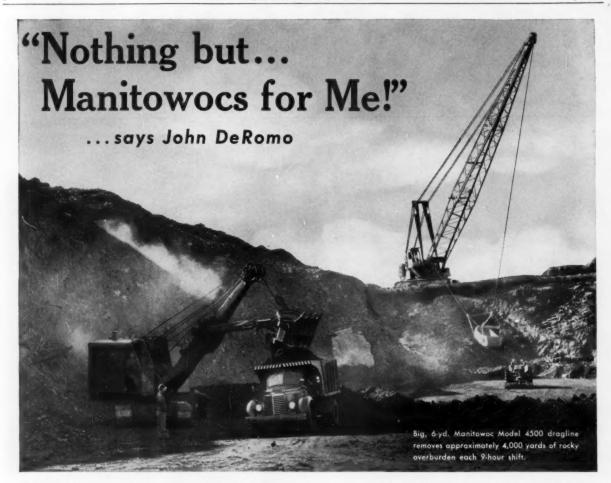
As your Caterpillar Dealer we are your best source for all Cat parts. Genuine parts are your insurance for the quality machine you bought. Get the right part—and quickly—for your Caterpillar machine from Beckwith.

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The John A. DeRomo Coal Company relies on Manitowoc excavators exclusively to load out more coal per shift from its Houtzdale, Pa. mine. "Nothing but Manitowocs for me!" is how owner John DeRomo puts it — after using only Manitowocs for 10 years.

Three Manitowoc Units

The big capacity champ in DeRomo's lineup of Manitowoc machines is a 6-yd. Model 4500 dragline with 120' of boom used for the heaviest stripping. Secondary stripping jobs are handled by a long-reach, 2½-yd. Model 3500 drag with 80' of boom. A husky 1¼-yd. Manitowoc 2000 shovel has the loading assignment.

Re-Worked Mine Pays Off

The cut pictured is 110' wide and has a 55' face with a 28" C seam of grade A bituminous coal. This seam produces an average 6,000 to 8,000 tons a month. Overburden is extremely rocky and hard-to-handle, but the 4500 dragline is removing about 4,000 yards per 9-hour shift.

John DeRomo is one of several operators to work over this area. Manitowoc capacity and efficiency help to make stripping of the heavy, rocky overburden a profitable operation. "We won't leave enough coal to keep a barbershop warm!" says DeRomo.

Exceptional Mobility

The ability of a machine to get around fast means a lot

to the overall profit picture on an operation of this type. DeRomo likes the mobility of his Manitowocs, pointing out that even the big 4500 dragline has traveled under low overhead obstacles without difficulty. And travel speed is fast and steady — even when climbing steep inclines.

Air Controls Speed Work

All of the DeRomo Manitowoc units have smooth-acting air controls. Operators stay at peak efficiency the entire shift — yet never lose the "feel" of manual control. Speaking of the smooth operation of his units, DeRomo says, "No strong arm is needed for my equipment . . . the 4500 drag rides like a baby carriage."

Call Your Distributor

See why prominent mining operators look to Manitowoc for top payload performance — call your distributor now for detailed facts on the complete line of Manitowoc mining machines.

Manitowoc Engineering Corp. Manitowoc, Wis.

BASSLER EQUIPMENT CO. FORTY FORT, PA

ANDERSON EQUIPMENT CO. BRIDGEVILLE, PA.

Automation has come to breadmaking. In one continuous operation, dough can be automatically placed on pans, proofed, baked and sent along its way to be wrapped and sold. This is the promise of an automatic bread plant invented by Kenneth R. Rand of Branford, Conn. Mr. Rand's bread factory earned him patent No. 2,780,182, one of the 867 patents to be awarded by the Government.

A time and space saver, the automatic bakery operates by means of a series of conveyors that carry first the dough and then the bread through the required steps in baking. One of the main obstacles to the development of an automatic bread plant in the past, Mr. Rand says, was to make flexible the time ratio between pan proofing and baking. Mr. Rand points out that he overcome this difficulty with a simple and efficient timing device located next to the loading station. The plant also eliminates the need for floor racks between the many operations now needed for converting dough to bread. Mr. Rand assigned the patent rights for the conveyor bakery to the American Machine & Foundry Co. of New Jersey.

• The engineering profession has grown tremendously since World War II but it has not done so without trouble between engineers and the management of the company they work for, Hugh L. Rusch, Opinion Research Corporation, Princeton, N. J., told the American Institute of Chemical Engineers meeting.

Interviews with engineers across the nation have shown that engineers give a favorable "over-all" verdict on their companies, but they are critical on several crucial points, Mr. Rusch reported.

They give the following complaints most frequently and spontaneously when discussing their relations with company management, he said.

Seventy-seven percent say "Engineers are given too much routine work." enty-six percent say "Pay is not high enough compared with other positions requiring the same or less ability." Sixtyone percent say "Engineers are not kept properly informed of company policy.

In another part of the general survey, the majority of engineers showed a strong aversion to forming unions for collective bargaining. This sentiment against unions varied widely from company to company, though, indicating that management's handling of a particular engineer can be a very important factor in his thinking about unions, Mr. Rusch

Two things are needed if engineers and management are to make the most of their relationship, he concluded.

"Management must understand what the engineer expects, and know that his expectations are high. But the engineer must also learn to view his own job as management is forced to see it, in the light of the complex requirements of the entire business, which must prosper as an organization if its various members engineers included- are themselves to grow in stature, be prosperous, and be happy in their work.

Do You Know? Here and There in ke Coal Industry



E. M. White

E. M. White, formerly assistant manager of the mining department, has been named sales manager of the Mining Division and W. C. Hamilton, formerly section supervisor of the general engineering department, was appointed mining operations manager.

Mr. White joined MSA in 1937 and is a graduate of Carnegie Institute of Technology and Morris Harvey College. He is a member of the National Mine Rescue Association, Mine Inspectors Institute of America and the American Institute of Mining and Metallurgical Engineers.

Mr. Hamilton joined the company in 1946 after graduation from the University of Pittsburgh. He is a member of the Society For Advanced Management and the Tri - State Industrial Association speaker's bureau.

Announcement was made by Donald H. McGeorge, President of Cherry Hill Coal Corporation, that Willard P. Chamberlain has joined the company. Mr. Chamberlain will serve as Vice President in Charge of Finance and will also be responsible for part of the sales and operating activities of this producer and shipper of bituminous

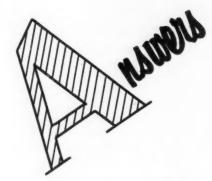


W. C. Hamilton

Dr. A. A. Potter was reelected president of Bituminous Coal Research, Inc. at the closing session of the organization's Techno-Sales Conference and Annual Meeting at White Sulphur Springs. J. E. Tobey, president of Appalachian Coals, Inc., is vice president; H. J. Rose is vice president—research; C. A. Reed is secretary-treasurer. The directors, in addition to Messrs. Potter and Tobey, are L. C. Campbell, vice president of Eastern Gas & Fuel Associates; L. Newton Thomas, president of Carbon Fuel Co.; W. J. Tuohy, president of C & O Ry.; Henry C. Woods, chairman of the board of Sahara Coal Co., and the new member, Dr. R. L. Savage, vice president-research, of North American Coal Corp. The board was notified of the election of Roy E. Dean, assistant to the president, Ayrshire Collieries Corp., as a Class A director to fill out the unexpired term of the late James W. Morgan. Class A directors are elected by NCA.

Josh B. Taggart has been elected president and chief executive officer of Wise Coal & Coke Co., Dorchester, Va., by the board of directors which met April 24. The new president has been associated with the Wise Company





ON OVER-TIME COSTS

by

PAUL LOCKWOOD



Coal mine management is taking a critical look at the overtime costs today. Checking includes how much they have gone up, what overtime costs are, where they are excessive, and why they have advanced.

Here are some questions and answers on the legal and cost factors involved in overtime costs:

How can mangement determine where overtime costs are out of line?

Before any executive decision can be made to reduce the overtime costs, they must first be known. Here is a plan to provide the facts to study overtime costs:

- Segregate payroll costs by departments on a regular time and on an overtime basis.
- Compare overtime costs by departments to highlight departmental problems.
- Observe employee performance in the various departments to judge necessity for overtime work.
- Question supervisors about ways overtime can be reduced or controlled.
- Check overtime costs with Federal Wage-Hour Law to be sure it is being computed correctly.

What is the best method of computing overtime wages?

The law requires that all employees be paid a minimum of one dollar an hour and one and onehalf times the regular rate for all hours worked beyond forty a week. This is not only the best method, but it is the legally required method for computing overtime.

What is the "regular rate" of pay?

This is defined as all remuneration for employment paid to, or on behalf of, your employee. It does not, however, include these statutory exemptions:

- 1. Gifts paid at Christmas or on some other special event.
- Payments made for periods when no work is performed such as vacation, holiday, sick leave, or lack of work.
- 3. Any contributions you make to a pension plan, retirement,

old age, life, accident, or health insurance program.

- Any premium pay for work above your regular weekly or daily standards.
- Premium pay for work on Saturdays, Sundays, holidays, regular days of rest, or for the sixth or seventh day of the week.
- 6. Any extra compensation for work outside the regular work-day or work-week that is not covered in the employment contract or in a collective bargaining agreement.

What is a work week?

You can establish any work week you want for your firm. It need not conform with the calendar week (Sunday through Saturday). It may begin at any hour of any day. According to the law a "work week" is a regular recurring period of 168 hours. Thus, any seven consecutive twenty-four hour periods would be considered a work week for the Federal Wage-Hour Law provisions.

Can I average hours for two weeks in a regular pay period?

No!

The regular work week is the standard. An employee working 30 hours one week and 50 hours the next week in a two week pay period should be paid as follows:

1st week—30 hours at regular rate.

2nd week—40 hours at regular rate. 10 hours at one and one - half times the regular rate.

How should overtime be calculated when employees are paid at an hourly rate?

The simplest way is to multiply all hours worked at the regular rate. Then, take all hours over forty and multiply this by one-half the regular rate. For instance, at \$1.60 for the regular hourly rate and 50 hours worked, the figures would be:

50	hours	at	\$1.60	\$ 80.00
10	hours	at	.80	 8.00

\$88.00

You can get the same answer for total wages by computing this with this method:

40 hours at \$1.60 _____\$64.00 10 hours at \$2.40 _____\$24.00

\$88.00

For management control of your overtime costs, you can see that there is a difference between the \$8 in the first method and the \$24 in the second method. The first method separates only actual overtime costs while the second method includes both the regular wages plus overtime cost for the overtime period.

How does a bonus plan change this?

Assume the same facts in this as before plus a \$5.00 bonus for the week. You would calculate this as follows:

50 hours at \$1.60 _____\$80.00 Bonus of \$5.00 _____ 5.00

\$85.00

Divide the total wages (\$85.00) by the total hours (50) and you have a rate of \$1.70 per hour.

50 hours at \$1.70 _____\$85.00 10 hours at .85 _____ 8.50

\$93.50

What about employees on a piece work basis?

You compute the regular rate of pay in these cases by adding together all of his weekly earnings from piece work rates, waiting time wages, and production bonuses. This amount is then divided by the number of hours worked to determine his regular rate. This, in turn, is then handled the same as any other wages to determine the overtime wages.

For instance.

Piece work pay _____\$70.00
Waiting time wages __ 15.00
Production bonus ____ 5.00

\$90.00

Divide earned wages (\$90.00) by number of hours worked (45) to determine his regular rate (\$2.00).

45 hours at \$2.00 ____\$90.00 5 hours at \$1.20 ____ 5.00

\$95.00

How is overtime calculated for employees hired at a weekly rate?

You would compute this by dividing the weekly salary by the number of hours it is intended to cover. For instance, an employee received \$70.00 a week for 35 hours. The hours divided into the salary equals \$2.00 an hour. He receives \$2.00 an hour for the first 40 hours and \$3.00 an hour for all hours over 40 in the week.

How is the "regular rate" determined for employees on a monthly salary?

This needs to be reduced to a work week. This is done by multiplying the monthly salary by 12 and dividing this total by 52. When this weekly rate has been determined, the same procedure is used to arrive at an hourly rate for use in calculating overtime costs.

Does this weekly and monthly overtime calculation cover all employees?

No. Some employees are specifically qualified for exemption. This includes executive, administrative or supervisory workers.

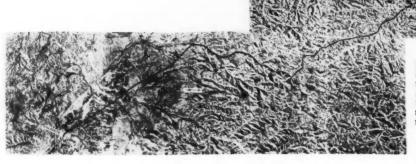
What about salaried employees who work irregular hours?

Some employees are hired at a certain salary per week with the understanding that this is to cover all hours he works. When this employee works different hours each week, his regular rate of pay will change each week.

You calculate this by dividing his weekly salary by the number of hours worked. This gives you his regular rate for each week and then the usual overtime calculations are used for all hours worked over forty in one week.

Overtime costs are a problem in management. They must be calculated correctly to comply with the Federal Wage - Hour Law. They must be controlled to keep production costs at a competitive level. And, they must be explained to all employees so there is no decline in employee morale.

Unique 72-Mile Pipeline In Operation For American Gilsonite Company



Rugged Terrain traversed by pipeline is seen in this composite aerial view of the mountainous country between Bonanza, Utah and Gilsonite, Colorado. It takes 29 hours for a particle of Gilsonite to travel between the two points through the pipeline.

The first pipeline ever built to transport solid materials over mountainous country has gone into operation.

Running from the mines of the American Gilsonite Company at Bonanza, Utah, the \$2,000.000 pipeline extends 72 miles over the towering Book Cliff Mountains to the company's new refinery, scheduled for completion this spring, at Gilsonite, Colorado, near Grand Junction. This is the first privately-financed refinery in the United States to produce, on a large scale, conventional petroleum products from solid hydrocarbons. Gilsonite, a trade-mark name, is the mineral raw material used. It is mined from vertical seams and is coal-like in appearance.

The pipeline will carry a mixture of crushed Gilsonite ore and water which will be converted into high-

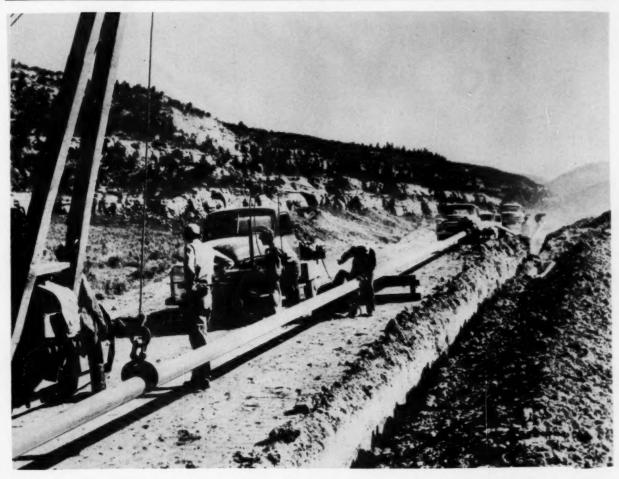
grade metallurgical coke and gasoline at the new refinery. The gasoline will be marketed in the Rocky Mountain area. The coke will be sold to aluminum producers and other industries for recarburizing and special metallurgical uses.

For virtually all of its length the pipeline crosses uninhibited country over some of the most rugged terrain in the west. It spans two large canyons via suspension bridges and crosses an 8500-foot mountain pass. Beginning at the company's mines in Bonanza, the 6-inch pipeline will be able to transport 700 tons a day of Gilsonite ore. The only other available means of transporting this quantity of material to the refinery would be by truck—and the pipeline method of transportation will save several dollars per ton over trucking costs.

Two suspension bridges, one 600

feet long at the White River, the other 700 feet long at Evacuation Wash Canyon, were built to span the deepest points of the line's route. Otherwise the pipeline is buried $3\frac{1}{2}$ feet, below the frostline, for its entire length.

Several factors entered into the decision of the Salt Lake City company, an affiliate of Barber Oil Corporation of New York and Standard Oil Company of California, to construct the pipeline. The ideal refinery location, considering the availability of a market for the gasoline, rail facilities for shipping the coke, labor, housing. etc., was the Grand Valley of Colorado. Trucking the ore from the mine, the method presently being used for the company's other products, would be very costly for the large quantities of ore required by the refinery. A railroad had run at



one time from the mines to Mack, Colorado, but this had long been abandoned and would be too costly to reinstate. The present pipeline, however, does follow the route of this abandoned Uintah Railroad.

Adequate water is available at the mines from the White River, and new hydraulic mining methods introducd by the company yields ore in an already-prepared slurry form. All this indicated the practicability of the project and a test program was instituted to determine the engineering data required for the design of the pipeline.

Pipeline tests were conducted by the Colorado School of Mines Research Foundation at Golden in a 500-foot closed loop of full-sized pipe. Pumping tests were conducted by the Wilson-Snyder Manufacutring Company at Braddock, Penna. Here various pistons, valves, seats, etc., were tested with the Gilsonite slurry.

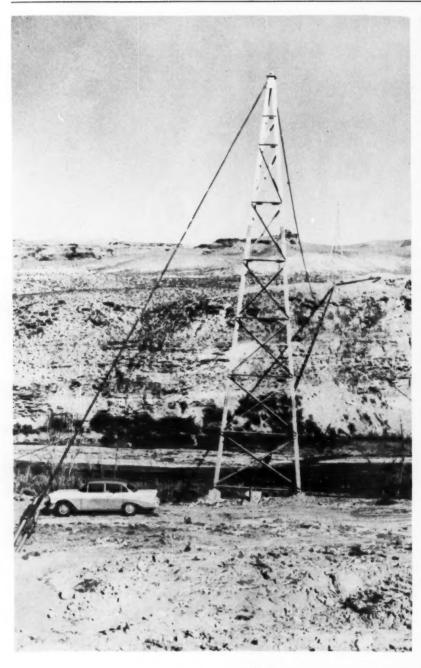
This test program took six months and confirmed preliminary evaluations of the project. One of the major factors found in establishing the pipeline design was the particle size of the Gilsonite in the feed slurry at the mine end. Although the pumps could handle particles of a ¼-inch size, results were dramatically improved with an 8-mesh size.

This smaller particle size also decreases degradation, or breaking down of the particles as they travel through the pipeline. It also makes de-watering easier, and makes it easier to maintain a suspension through the line. Hence the Gilsonite pipeline is designed to handle 8-mesh particles.

Laying the pipeline from American Gilsonite Company's mines at Bonanza, Utah to the new refinery at Gilsonite, Colorado, where high grade metallurical coke and gasoline will be produced. The 6" pipeline handles a slurry of 35% Gilsonite-65% water.

The entire pipeline is laid at a reasonably flat slope, except for two miles past the summit of Baxter Pass, the highest point, where 21 degree slopes were necessary. Initially, solids concentration of 35% Gilsonite-65% water will be sent through the line. Uniform slurry will be maintained by two 200,000 gallon tanks at Bonanza which will be held under constant agitation.

A unique method of determining pipe wall erosion losses was devised by California Research Corporation, a subsidy of Standard Oil Company of Calif. A small section of radioactive pipe was placed in the test loop and careful measure-



Suspension bridges carry the pipeline over the White River and Evacuation Wash canyons. Otherwise, the pipeline is buried beneath the frostline.

ments of the minute amounts of radioactive iron worn away could be made after only a few hours of operation. Gilsonite is very friable and will not abrade steel surfaces. It is completely insoluble in water and naturally free of impurities A chemical corrosion inhibitor will be used since the solids apparently scour away any natural protective

coatings that are formed on the pipe wall.

The pipeline is designed for continuous flow, and will be shut down only after all the slurry is flushed from the system. Three electric-

driven slurry pumps are at the Bonanza pump station; two are normally used and one is a spare. If power should fail, a dieseldriven pump will be cut into the line and flush the system with water. This pump usually provides high pressure water for ore cutting in the mines. A final measure of protection is the 8,500-foot-high reservoir at the summit of Baxter Pass. This reservoir can flush the system in both directions. There is also a high pressure pump at the refinery that can back-flush the line.

These precautionary measures were all easy to provide and mean extra insurance against plugging of the line. In fact, the pilot tests showed that so long as edequate velocities were maintained, slurry could be continuously circulated without build-up of solids. The pumps are 300 horsepower reciprocating pumps. The pumping rate is 325 gallons per minute and discharge pressure is 2370 pounds per square inch.

The pipeline was designed by the Engineering Department of Standard Oil Company of California. The de-watering operation at the Gilsonite, Colorado, end was worked out by Standard Oil Company of California's Engineering Department with Allen & Garcia of Chicago, and engineers of American Gilsonite Company.

American Gilsonite Company also mines and sells Gilsonite ore, for use in asphalt tile, paints, varnishes, inks, building and insulation materials. It also markets GILSU-LATE*, specially sized, selected and blended Gilsonites, used extensively throughout the world to insulate underground hot pipes.

*GILSONITE and GILSULATE are registered tradenames of American Gilsonite Company.



As a rule, progress is the product of fresh thinking brought about by experience and observation of the working application of the latest practical methods. Progress leaves behind it structure, a product of history or irreversible process the character of the material change lending itself to serve as an index to properties of action. Highly regular structure of this sort indicates determined process even though it be behavior or a group of organisms. Biologically, change (progress) is irreversible.

Yesterdays get buried in the past. Like dead vegetation of last year nourishes new plant growth this year, experience gained yesterday gives sustinence to new ideas of today.

Nothing can suppress the facts of nature. Man masters nature not by force but by understanding. Man controls nature only by understanding her laws. Nature will produce whatever man wills.

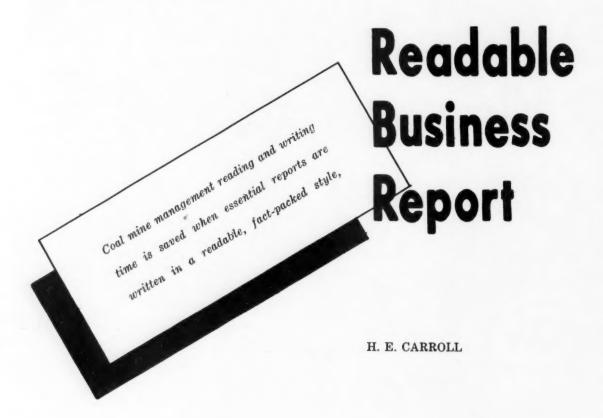
Science and research enable us to push back the frontiers of new knowledge. The crusade of science and research to our way of life has been incalculable. The potential

by the The Long Co. for extending pan conveyors, It transports 3 pans, plus tail piece. Driven by 10hp approved motor. Hydraulic driven winch with 150 feet of wire rope comes with this model. It is also made in straddle type with 5 hp approved motor, which carries up to 7 pans plus tail piece.

of science and research are never ending. Boiled down, science, research and the resulting technology in our industry are the little bits of extra knowledge resulting from concentrated effort by men of learning and experience.

Having the responsibility of training men to cope with the complex mining machinery of the future, we need more men in our industry with a true essence of creative thinking.

How to write a



1. GET TO THE POINT

Long-winded introductions waste executive time in reading and writing. Don't tell what you are going to report on—report on it. State your purpose quickly and concisely.

2. PICTURE YOUR READER

Who is going to read the report? What does he know about coal mining? Does he have any pre-conceived ideas? Does he have a technical background? Visualize your report reader and write directly to him.

3. EXPRESS . . .

DON'T IMPRESS

You wouldn't have the report to write if there was any doubt about your ability. You don't have to

waste time trying to be impressive—you are. Write to express facts and ideas—not to impress top brass or employees.

4. HIGHLIGHT MAIN POINTS

Outline your report before writing. Select main ideas or facts. Highlight these main points in outline form as you write. Indent sub-topics and explain briefly as necessary.

5. KEEP IT EASY TO READ

Readable report writing follows five basic rules:

- 1. Well-known words
- 2. Personal references
- 3. Short sentences
- 4. Short paragraphs
- 5. Short reports

Following these five rules will make your report easy to write . . . easy to read.

6. BE LOGICAL

First things should come first. Follow through in a logical step-by-step order. Don't start with yesterday, jump to tomorrow, and then back to today. Use space or time progression to keep your business report on the track.

7. END PROPERLY

Don't leave any loose ends. A business report can end in one of two ways:

- 1. Brief summary
- 2. Recommendation for action

When you have touched all bases in your report, you are through. Stop!

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(SERIES E)

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No. 933 TRAXCAVATOR AT

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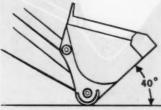
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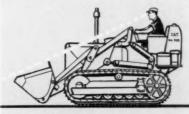
No. 933	No. 955	No. 977
FAUR	TO UP	100 HP
		21/4 cu. yd.
i cu. ya.	1 72 co. ya.	274 co. ya.
7' 115/16"	8' 3%"	9' 3%"
9' 111/16"	10' 8"	11' 91/2"
934"	121/4"	13%"
13' 10"	15' 114"	17' 15"
5' 10"	6' 8"	8' 0"
6' 313/16"	6' 10%"	7' 3%"
16,850 lb.	21,480 lb.	31,795 lb.
	50 HP 1 cu. yd. 7' 111/16" 9' 111/16" 9'4" 13' 10" 5' 10" 6' 31/16"	50 HP 70 HP 1 cu. yd. 1½ cu. yd. 7′ 11½6″ 8′ 3¾″ 9′ 11½6″ 10′ 8″ 9¾″ 12¼″ 13′ 10″ 15′ 1¼″ 5′ 10″ 6′ 8″ 6′ 31¾6″ 6′ 10¼″



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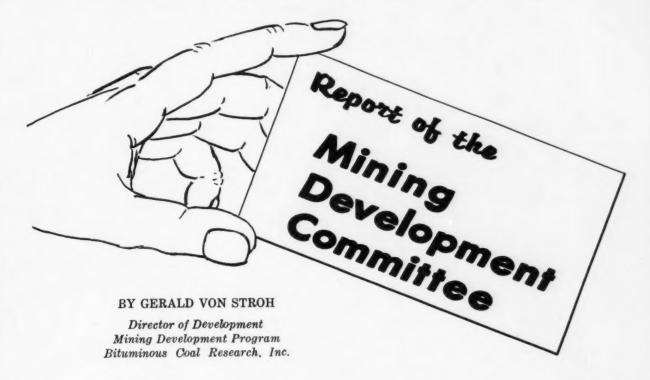
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It is a pleasure to have the opportunity to meet with you and we feel honored to have the privilege of presenting our ideas before a group of the most progressive men in the industry. The mere fact of your being present at this meeting indicates your dissatisfaction with things as they are and your recognition of the need for improving things. This of course, is the basic requirement for progress.

We are told that over the next 25 years, the coal industry must spend the staggering sum of ten billion dollars to replace worn out properties and to meet the needs of the expansion of markets which appear to lie ahead. The Mining Development Program, we believe, will contribute substantially to the meeting of this problem and to obtaining the necessary funds. Carl Mabley, president of Island Creek Coal Sales Company, gave a magnificent talk before a meeting of Appalachian Coals, Inc., in Cincinnati. I would like to repeat for you some of Mr. Mabley's comments.

"The energy consumption in this country and throughout the world—as total and on a per capita basis—is on the sensational rise. There is every indication that this trend will continue for generations to come. It promises to exhaust many areas of fuel resources on which we have come to depend.

"The role of bituminous coal in this energy picture, as you have been told many times, is destined to grow. In 1955, bituminous coal accounted for 31.6 percent of total energy, and the final figures for 1956 will reveal a further increase. The years 1955 and 1956 represent the reversal of a trend that set in after World War I, when bituminous coal had been the source of 70 percent of our mineral energy for many years, but declining to 29 percent in 1954.

"Estimates for 1957 production are being made at about 525 million tons, with most of the gain going into the overseas trade and to electric utilities.

"A few weeks ago, officials of the Florida Power & Light Company made national headlines with a story that dramatized the recent increase in the price of heavy fuel oil. In less than two years, the price of residual oil had been raised from \$2.15 a barrel to an average of \$3.15, equal to a \$4.30 per ton price increase for coal.

"The price of industrial coal, on the other hand, is lower than it was in 1948, and in the year 1956 is actually lower than during the base period of 1947-49 as used by the Bureau of Labor Statistics in presenting price data. (This is the same data used as a basis for cost of living increases under certain labor contracts.)

"This statement on coal prices is based on carefully-kept records

for a large number of producers in District 8, the nation's largest coal producing area, which includes eastern Kentucky, the high volatile area of southern West Virginia, and Tennessee.

"The fact that the price of industrial coal from the largest coal producing area in 1956 was still below the 1947-49 average is both good and bad. While it emphasizes the economy of coal, it also highlights one of the major problems in the industry—the necessity for achieving adequate return in order for the industry to meet the demands upon it which the future is certain to make.

"One of the principal reasons why coal may be expected to maintain this economic advantage is its preferred position with relationship to proven reserves. Truly, this is coal's 'ace in the hole.' The tremendous unmined reserves of coal bear importantly on the supply factors in the all-important formula of 'supply and demand.'

"Long before oil and gas reserves are exhausted, increasing and prohibitive costs may be expected to limit the contribution of oil and natural gas to our increased energy requirements.

"Again contrasting the situation with regard to coal, Bureau of Mines statistics show that one-fourth of America's bituminous coal reserves are economically recoverable at today's cost of mining, or approximately 500 years supply at the present annual production of one half billion tons.

"In the Ohio Valley, and in other places where coal is presently available on an economic basis, atomic energy may not compete with conventional fuels for a houndred years or more. In the meantime, the U. S. atomic energy program is absorbing over 20 percent of industrial electricity generated by the utilities, nationwide. With atomic energy plants concentrated in coal's territory, easily 20 million tons of coal annually are going into the atomic energy program.

"Up to this point. I have spoken of the economy of coal as a fuel and predicted it will remain so relative to oil and gas, and to atomic fuel over the foreseeable future. We have discussed the fact that economically recoverable reserves of bituminous coal exists to provide an output at current production rates for centuries. Yet there is another factor-all-important to the future availability of coalthat must be brought into the open. It has to do with the price of coal in the market place, and the urgent necessity for that price returning an adequate profit to attract the capital which the industry must have if it is to power this, our second industrial revolution. and more, the leaders in our coal industry are coming squarely to grips with this sobering problem.

"Beginning with the Paley Report in 1950 which looked for a coal production of some 800 million tons by 1957, other forecasters and analysts have added their prognostications, all running in a similar vein. So much to, that we must expect the demand of bituminous coal to reach a billion tons a year within the next quarter century—along about 1980 or perhaps before.

"Let's think for a moment what that means in terms of investment necessary to make such a production possible. Not only must new capacity be opened that will produce roughly a half million additional tons of coal a year over and above present output, but practically all of the existing capacity must be replaced as well. This latter statement is made on the theory and knowledge that some four percent of existing properties work out and must be replaced each year just to hold capacity even.

"In terms of present dollars, it costs from \$8.00 to \$10.00 per ton of annual production today to put a new mine in operation. Therefore, either from retained earnings, or for the capital market which can be favorably impressed by the coal industry profit record, we must come up with some 8 to 10

billion dollars over the next 20 to 25 years in order to meet the energy demands.

"Very frankly, the industry is not earning, at the present time, at a rate which will either provide this necessary capital or attract it from the money market in competition with other more profitable industries.

"While complete statistics on the subject are not available, nevertheless what can be learned indicates that the industry's earnings are less than 50 cents per ton before taxes and not over 35 cents per ton after taxes. This return of only 3½ percent to 4 percent on a capital investment of \$8.00 to \$10.00 per ton of annual production is, of course, wholly inadequate to attract new capital and, even assuming no dividends, would produce not over \$175 million per year of earnings.

"In 25 years this rate will produce little more than half of the \$8 to \$10 billion minimum capital needs. To attract new capital, we are told, our industry must develop earnings of at least 20 percent before depreciation and taxes which, on a capital investment of \$8 to \$10 per ton of annual production, would be \$1.60 to \$2.00 per ton This would mean approximately \$1.25 to \$1.40 per ton after depreciation and before taxes—or between two and three times the current rate.

"Obviously, coal has remained too much of a bargain in the market place.

"Coal is providing BTUs at half the cost of its competition at point after point. A small part of this margin, returned to the industry in the form of net profits, will make a real difference on the earnings statement. Furthermore, it will still enable coal to retain by far the greater part of its present margin of economy over competitive fuels.

"As more and more of coal's production moves to industry, it is clear that the industrial coal consumer will be called upon to pay the cost of production plus an adequate margin of profit. Careful and precise calculations have shown that this margin should be in the neighborhood of a \$1.50 a ton in order to attract the capital with which to meet the growing demands upon coal production.

"Mr. Raymond E. Salvati, president of Island Creek Coal Company, said it this way in an address last fall before the New York Society of Security Analysts:

"I should not want to leave you with the thought, however, that the task ahead is an easy one—it is not. No industry can satisfy a growth demand such as that projected for coal without encountering difficult problems. Like other coal producers, Island Creek is faced with the problems of finding the capital with which to finance its expansion. We in management are naturally striving for increased profits as a means of providing a large part of the needed capital.'

"Another industry leader, Henry G. Schmidt, president of North American Coal Corporation, commented on the situation on January of this year in these words:

"'Where then must this additional capital originate As I see it, it must come from two sources: long term debt and equity capital. To obtain this huge outlay of money for a relatively small industry like coal, it is obvious to me that basically the industry must produce greater earning to justify the risks involved. Down the road a few years it must earn more than \$1.00 per ton.'

"These are today's realities which face the industry, its customers, and the nation as well. The coal industry has been in the past traditionally a low-profit operation.

"However, the expansion capital need in the years ahead cannot be provided on present profit margins. The nation's energy needs can be met if the coal industry is able to market its product at a price that will attract equity capital by the resulting profits."

The answer to the problems stated by Mr. Mabley lie, we believe, in an aggressive and challenging program by all facets of our industry.

The Mining Development Program is attacking this job not only from the point of reducing the cost for labor but also in making many attempts directed toward the reduction in capital cost for equipment in the mining of coal.

For example, the Mining Development Committee's extensible belt is expected to cost about 30 percent less than extensible belts now commercially available. A reduction from about \$60,000 to \$40,000 would be a saving of \$20,000 per machine unit or about tencents per annual ton of production. This device should also permit a reduction in the face crew conventional methods by two men and improve the continuity of the continuous mining machines.

Temporary roof support involving the use of recoverable beams, should save another ten cents a ton in supply costs for room work or an overall industry savings of about \$24,000,000 per year.

Main line transportation should cause an appreciable reduction in the cost of opening up a new mine and for solving some of the current problems, particularly pertaining to refuse disposal systems. For example, the trolley conveyor developed by the Mining Development Committee will provide the same carrying capacity with a 30 percent lower capital cost. One refuse disposal system under consideration would require \$300,000 by conventional methods and less than \$200,000 utilizing a trolley conveyor application.

A new automatic control system for presently existing and available continuous mining machines should provide minimum additional production of ten percent which would provide a savings of almost \$1.00 per ton on the capital cost of \$8.00 to \$10.00 a ton for opening up a property or putting it more dramatically, reducing the eight

to ten billion dollar capital outlay required over the next ten to twenty-five year by almost one billion dollars.

One study under our operations research program and applied to the problem of engineering of coal mines will permit one company to release eleven highly trained technical people for more important work.

Examples could be multiplied but we believe it is obvious that results in mining research can be of substantial benefit in meeting the problems that lie ahead, both from the point of view of increasing profits by lower cost as well as by reducing the amount of money necessary to invest to produce a ton of coal.

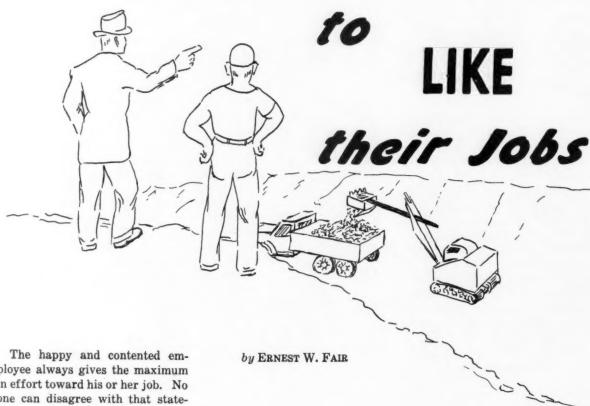
These results will only be beneficial if they are applied. It will be necessary, we believe, for each individual company to apply these results with its own organization by determining the best way these results can be applied to their particular properties. It will not, we believe, be sufficient for the individual companies to wait until these various developments are available in commercial form. Many serious mistakes in capital expenditure could result by following this path.

Of recent months, it has been most gratifying that several of our subscribers have in effect asked us to help them set up their own mining research departments in order to implement and apply the results being obtained by the Mining Development Committee's laboratories in Huntington.

We would like to therefore suggest to you that you take back to your companies the idea that it might be well for your company to consider setting up their own applied development departments, even if it consists of only one man.

It would be well for us to recognize that the production of coal is rapidly changing from a crafttype operation to a highly sophisticated continuous production system.

Getting Employees



The happy and contented employee always gives the maximum in effort toward his or her job. No one can disagree with that statement. Employers, as a cansequence, have been devising all sorts of schemes to make jobs more appealing to the people on the staff. The result is too often a group of pampered individuals presenting less than before anything was offered to them.

Any coal company executive can expect an actual high degree of loyalty from the people on his staff when each individual genuinely likes his or her job. When such a condition exists not only do we have a better staff but it takes a great deal more persuasion than competitors are usually willing to offer to get them away from our business.

What can we do to arouse more liking for the job on the part of each employee on the staff? In

paragraphs to follow are suggested approaches that have proved themselves in actual usage within successful firms. They steer clear of costly pampering.

A recent survey was made among a large group of workers in various lines of business to determine why each liked his particular job. Here are the results of that survey (in terms of percentage of the whole): because it was an interesting job—19; liked the people with whom they worked—17; liked it because of contact with people—12; liked the general working conditions—12; wages—9; fit well into their personal life interests—7; easy work—6; the company was fair—5; they had job security—5;

liked the boss—3; because of future advancement possibilities—2; because of autonomy—?; and union protection—1.

The coal firm executive will readily note that many of the supposed "fringe benefits" were not of top importance to the worker. Two big factors accounted for 36 percent of the total, i. e., because their jobs were interesting and because they liked the people for whom they worked.

Getting one's employees to like their jobs is therefore of great importance. This process covers the mentioned above also. It is well worth the consideration of every exeutive whether his business be small or large.

Here is a short list of how a number of executives go about accomplishing this aim:

1—They do everything possible in all conversation with the employee at hiring and through employment to point up good factors involved in that type of work.

2-They provide good working surroundings (where possible) wherein each individual is employed to prove that point.

3—They make sure all facilities are provided to make the work as easy or easier than it is in competing firms.

4-They make no plan or set up no rules covering the job without talking them over with the employees first and making certain they are framed to be acceptable and desirable to the employee.

5-They exercise care and discretion in hiring anyone so that the people with whom each individual works are of the highest possible caliber.

6-They operate a business sufficiently wide in scope to give employees job interest and variety in their work.

7-They maintain a rigid policy of fairness in handling every problem with which the employee is concerned in doing a good job.

Experience has shown that the executive should never place undue importance on factors concerning the employee which are not of top importance to him in liking his job. While all of these contribute to the whole we can too easily place top importance on a relatively minor factor and destroy the whole program.

Too often we view wages as being of the utmost importance. Survey after survey among employees has shown that (where union scales are not involved), as long as these are on a par with those being paid by the industry in the area, wages are of less im-

second of the two leading reasons portance than other factors. Another point of interest in this connection is that the more skilled the job the less important wages become.

> We must also consider, in planning such effort directed toward getting employees to like their jobs, that motivations change as the employee grows and develops physically, mentally and emotionally. Each must be viewed as a separate individual rather than as a member of the group for individuals very definitely differ in their job motivations.

It is also wise to keep in mind that each employee's personal situation will affect his or her viewpoint toward the job. This too must be taken into consideration in planning our efforts.

There are also definite assurances that every executive can give the people on his staff with regard to their employment which will make their jobs much more appealing to them. The more important of these are:

a) Steady employment and no discharge without cause.

b) Where special concessions are involved they go to seniority when merited.

c) Where possible good working conditions, i. e., lighting, heating, ventilation, sanitation, safety, etc.

d) Treatment as an individual, respect for opinions, etc.

A policy of steady employment and fair adjustment of grievances has been shown to be of great importance to workers in every business and every class of employment by many surveys. They always rank near the top of the list. They should be definite parts of any executive's employment rules and he should not only make certain that every employee is well aware of them but that they are so reminded of them from time to time.

Working conditions must also be considered. In too many instances the firm management will set up excellent working conditions at one time or another and then neglect these as time goes by. In most cases it is purely a matter of neglect through greater concentration on other factors concerned with keeping the business alive.

Almost invariably, where a very high degree of satisfaction with their jobs is voiced by employees. working conditions receive constant scrutiny by the business management. They are given equal attention with efforts to make the business attractive. Unfortunately even the slightest instance can acquire undue importance in the mind of the average employee. What may seem unimportant to mangement will often be of the utmost importance to the employee.

It is therefore advisable that we make constant checks on such conditions through a regular system of inspection and friendly discussions with each employee in turn from time to time. It is also of interest that most such conditions can be corrected least expensively when they are spotted and that individual employees will notice them much more quickly than the executive ever can.

Our own actions on the job, or those of anyone in supervision, should also be checked from time to time, for these can get out of balance and create unhealthy situations before we realize what has happened.

The outstanding thing about getting one's employees to like their jobs, as can be observed through reading the foregoing factors, is that the whole thing is a very inexpensive procdure and can be put into operation by any executive without trouble or inconvenience.

In truth it is indeed a very easy matter to get one's employees to liking their jobs!

Two appointments in the Mining Division of Mine Safety Appliances Company, Pittsburgh, have been announced by C. M. Donahue, vice president.



Swinging High! Standing on one seam of coal the River Queen clears limestone overburden from an upper coal seam. Note how the pickup truck in the foreground and hte bulldozer in the background are dwarfed by the 2,400-ton machine.

80-Ton Bites

taken by huge, new Power Shovel in Kentucky Mine One of the largest mobile land machines ever built in the United States, a 2,400-ton power shovel named the *River Queen*, has gone to work in a new open pit coal mine in western Kentucky.

Taller than a 13-story building, heavier than a Navy destroyer, and able to take more than 80 tons of rock and earth in a single bite, this new shovel is being used to uncover two seams of bituminous coal in the River Queen Mine near Central City. The mine is owned jointly by the W. G. Duncan Coal Co. and Peabody Coal Co. It is operated by Peabody. When in full operation, its output will be 2 mil-



Building Mountains—55 Cubic Yards at a Crack! The RIVER QUEEN bites out more than 80 tons of rock and earth in each cycle. It could pile up a "mountain" of more than 100,000 tons of overburden in a 24-hour period. One operator controls the digging operation with two hand levers and two foot pedals.

lion tons of coal annually, mine officials say. Shipments will be both by rail and in barges loaded over the River Queen Dock on the nearby Green River.

The River Queen, a Model 1650-B special long-range stripping shovel equipped with a 55-cu. yd. dipper, is the largest power shovel ever built by Bucyrus-Erie Co., South Milwaukee, Wis.

The 1650-B stands 140 feet high. It is equipped with a 145-ft. boom and an 86-ft. dipper handle, enabling it to dump rock and earth overburden nearly 300 feet away from the digging point and to stack it more than 100 feet high. In each pass of its mammoth dipper, the River Queen excavates enough material to fill a room 14x12x9 feet.

More than 70 railroad cars were required to ship the shovel from Bucyrus-Erie's South Milwaukee plant to the erection site. First peices of the shovel arrived late last summer. Bucyrus-Erie personnel directed the erection of the shovel. The *River Queen* took its first bite of overburden in March.

And, what an appetite the River



Down to Earth. The 55-cu. yd. dipper of the RIVER QUEEN is sure to provide a lens full for the cameraman and his young companion.



Queen has! At the rate of one digging-dumping cycle in a little less than a minute, this mechanical giant in 24 hours could pile up a mountain of more than 100,000 The River tons of overburden. Queen will excavate only down to the coal seam; actual coal loading will be done by smaller shovels. They will load into large diesel haulers, which will take the coal to a washing and screening plant now under construction. The plant will be geared to wash 1,000 tons of coal per hour.

Despite the River Queen's size,

Some Toy! A small boy looks at one of the RIVER QUEEN'S four crawler truck units. Each crawler weighs 217,700 pounds, is 13 feet 5 inches wide and 26 feet 9 inches long. It is 10 feet 9 inches from the ground to the top of the motor guard. Each unit is powered by a 200-hp motor.

one operator controls the entire digging operation of the machine with two hand levers and two foot pedals. The operator's glass-enclosed cab, perched 30 feet above the ground at the right front corner of the machine, was constructed to provide maximum visibility. An 8-ft. wiper keeps the windshield clean on rainy days.

The cab has an air conditioning system and an inter-communication hookup with four telephone sets. A loudspeaker attachment on the boom enables the operator to keep in contact with his ground men and those in the pit area. Further enhancing the cab's comfort and utility are tile flooring, wood paneling, a water cooler, clothes lockers and a foreman's desk.

Fifteen General Electric motors power the shovel—eleven for digging and four for propelling. The main motors are two 1,500-hp AC motor-generator-set, synchronous-driving units. The main functional DC motors consist of four hoist motors rated at 375-hp each; three swing motors at 187½ - hp each; and four 200-hp propel motors.



Bucyrus-Erie Model 88 B Dragline stripping and Model 38-B Shovel loading out coal at a Pennsylvania coal mine.



Allis-Chalmers HD-21 Tractor pushing spoil at a strip mine near Uniontown, Pa.





The new Caterpillar No. 428 Scraper has a 13 cu. yd. struck capacity, and a heaped capacity of 18 cu. yds. Equipped with 26.5-25 tires, the new scraper is afforded improved traction and flotation, with a decrease in tire costs and down-time. Increased apronlift allows material to be ejected faster, an important factor in reducing cycle time.

A new four-wheel prime mover and matching scraper combination, offering increased load capacity, higher speeds and greater tractive ability, has been announced by Caterpillar Tractor Co.

The newly-announced rubbertired unit is the Caterpillar DW15 (Series E) Tractor and No. 428 LOWBOWL Scraper. The tractor incorporates design changes in several major components, including the engine and power train. The new matched scraper is designed to utilize fully the tractor's output in obtaining maximum production, and incorporates LOWBOWL design to facilitate fast loading.

A new Caterpillar Diesel Engine has been designed for the DW15 (Series E), and develops 200 (maximum output) horsepower at 2000 RPM. Features incorporated into the engine make use of natural engine lug characteristics, to accomplish a 23% torque rise and high rim-pull over a wide speed range, decreasing the need for gear changes. As an example, in fourth gear over 3000 pounds of rim-pull are delivered when the tractor is operating in the speed range between 9 and 18 MPH. In addition to reducing gear shifting, the new engine affords faster acceleration and resultant lower cycle time.

Besides offering wide-range torque characteristics, the new DW15 (Series E) incorporates a ten-speed transmission, which offers working speeds from 2.7 to 37.2 MPH. Top speed of the DW15 (Series E) is 14 MPH faster than its predecessor model, the DW15 (Series C).

The major components of the drive train, such as the final drive housings, axle tubes, axle shafts and final drive gears have been given additional strength for longer service life.

Wide-section, 26.5 x 25, 20 - ply tubeless tires are being offered as standard equipment. With the introduction of wide-section tires, rear wheel tread has been increased by 9 inches over that on the previous model. Besides providing improved traction and flotation, these tubeless tires serve to lower tire costs and downtime.

The braking system of the DW15 (Series E) has also undergone changes. Brake shoes with solid cam ends are now used, and improved linings with longer rivets have been adopted. They are designed to give safer, more positive braking action over a longer working life.

The new No. 428 Scraper incorporates LOWBOWL design, similar to that introduced by Caterpillar on its larger model scrapers. The No. 428 has a struck capacity of 13 cu. yds.—an increase of 4.1 cu. yds. over its predecessor, the No. 15 Scraper. Heaped capacity of the new scraper is 18 cu. yds.—4 cu. yds. more than the previous model in the Company line.



The newest addition to Caterpillar's line of rubber-tired earthmoving units is the DW15 (Series E) and No. 428 Scraper. This prime mover and matching scraper combination offers increased load capacity, higher speeds, and greater tractive ability. The tractor incorporates design changes in the engine and power train, to afford longer service life and the ability to work at faster speeds. The matching scraper utilizes the full tractor output, and its LOWBOWL design facilitates faster loading.

Additional design features of the No. 428 Scraper include increased ground clearance, intended to permit higher speeds in uncertain footing, and an apron lift of increased height to facilitate the faster ejection of material.

The pushblock has also been modified. Its wider and higher dimensions, coupled with a new rounded contour, provide a better target for the pushing tractor.

William H. Ritter was elected president of Reitz Coal Co., of Windber, Pa., for the 19th consecutive term at the firm's annual meeting. Mr. Ritter is president also of Central Pennsylvania Coal Producers Association and Eastern Bituminous Coal Association. Other officers elected are Howard K. Sutton, secretary, and Bryson Dunmire, treasurer. Directors include Mr. Ritter, Mr. Sutton, P. D. Brown, William Steutz, and Otto Schulz.

Compton Model 42 Recovery Drill, complete with 200' augers, 42" dia. Hough Hi Lift HMD 1¾ yd. Good condition.

Lorain 820 LC Shovel, Cat. Engine, high front.

2 Manitowoc 4500 Draglines.

Manitowoc 3500 Dragline 3800 series. P&H 1055 Dragline, 80' boom, Buda motor.

L&S Lathe 22' centers, 25' bed. Good. International Tractor 04. Like new. Joy 10 RU Coal Cutter on Rubber, AC Power, Permissible, 440-220 V.

W-H 500 KW-MG Set, 250 V and 2300 synchronous Motor, Excellent. GE 300 KW-MG Set, 500 V., 2300 AC. Joy CD 25 Coal Drill on Rubber Per-

missibles.
30 Ton Jeffrey Locomotive, 42" ga.
Goodman 460 Loaders. Low price.
Sullivan 7 AU Cutters. Low price.
Jeffrey 29 U Cutters. Low price.
New Parts for these machines.

Joy 8 BU Loaders, 6 of these. Sanford D-P Mine Cars, 42" ga., 5 ton. Jeffrey 35 B and 35 BB Cutters. Joy 3 JCM-2CE Miner in 300 series.

Coal Mine for Lease, Pgh. Seam, Metolurgicol 500 TPD, deep mine equip. 4 Joy Shuttle Cars, type 42E18 X with Hyd. Steering — Elev. Discharge—Disc Brakes—Hyd. Steering 1952 models. Can be seen operating. Priced right.

"Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co."

T. L. SIMPSON

MACHINERY AGENT AND BROKER
1200 Woodbourne Ave. Pittsburgh 26, Pa.

Phone LEhigh 1-2254



Thomas Stokes, attorney and head of retail and wholesale fuel concerns, who was one of three new members of the Board of Directors of the Glen Alden Corporation elected during the firm's annual meeting in Wilkes-Barre, Pa.

A new bulletin is offered describing the portable M-S-A Type W-8 Methane Detector, which can quickly and accurately determine the methane content of mine air.

Engineers of Mine Safety Appliances Company, where the instrument was developed, say the simple-to-operate Methane Detector is extremely sensitive. It has two scale ranges, one graduated in one-tenth per cent divisions between two per cent and five per cent.

The lower scale has a range of zero to two per cent, graduated in five-hundredth divisions. Readings on this scale may be estimated to one-hundredth per cent. Either scale may be used by flipping a handy toggle switch.

To take a reading, the operator opens the hinged top. This automatically switches current on. Current is supplied by an Edison cap lamp battery. He then squeezes the rubber hand bulb a few times and the amount of methane concentration is immediately indicated on the easy-to-read dial.

The Methane Detector weighs only six pounds and is enclosed in a strong, rustproof metal case. Copies of the bulletin may be obtained from Mine Safety Appliances Company, 201 North Braddock Avenue, Pittsburgh 8, Pennsylvania. Ask for Bulletin No. 089-4.

A new hydraulic batch tripping mechanism, said to afford splitsecond batching and especially designed for use on high production paving operations, is announced by Hercules Steel Products Company.

Controlled by the driver from within the truck cab, the new batch tripping system is reputed to permit batching trucks to handle fastest paving schedules easily. With the new time-saving system, says the manufacturer, the truck is backed into the paver skip with the body already raised. Then the driver presses the tripper dash control and the selected batch is

For heavy hauling you'll do better with JEFFREY 8-wheel Trolley Locomotives

Big coal loads can be hauled fast with Jeffrey 27, 37 or 50-ton single-unit locomotives.

Operation and maintenance are better, too. The four-wheel, equalized double trucks and the short over-hang at the ends give an easy ride at high speed. The eight wheels distribute the locomotive's weight for less concentrated rail loading.

Outstanding operating and safety features include: roller-bearing type journal boxes and motor axle suspensions...air and dynamic service brakes...automatic couplers with air-operated uncoupling...trolley with air-operated retriever...separate blower for each motor.

Other features of 8-wheel locomotives and other types for mainline and secondary haulage are described in Catalog 836. For a copy, write to The Jeffrey Manufacturing Company, Columbus 16, Ohio.





MINING • CONVEYING • PROCESSING EQUIPMENT TRANSMISSION MACHINERY • CONTRACT MANUFACTURING

Item 257-P564. Caterpillar Mod-el D9 Tractor with No. 29 Cable Control and 98 Blade. Only 3770 hours on machine. Installed new hours on machine. Installed new pins and bushings in tracks; in-stalled new bellows seal on left final drive and new turbo-charger inai drive and new turbo-charger on engine. All operating clutches have been adjusted and machine is in A-1 shape. Guaranteed for '90 days against major breakdown. "BONDED BUY." \$36,000.00 FOB Pittsburgh, Pa.

Item 157-WV224. Caterpillar D8 Tractor with No. 25 Cable Control and No. 88 Bulldozer. Installed new final drive case, installed new bearings and seal in final drive. rebuilt transmission before trad-ing. We installed new and rebuilt bottom rollers, one new front idler, one new sprocket, new canopy top, reringed diesel engine, valve job and rebuilt starting en-gine. Unit is in very good conengine. \$15,000 FOB Clarksburg, W. Va.

\$15,000 FOB Clarkaburg, W. Va.
Item 1056-WV209. Caterpillar
Model D8 Tractor with No. 25 Cable Control and No. 6A Bulldoxer.
Diesel engine rebuilt with new
main and rod bearings, rings and
new rods; oil pump rebuilt; ten
(10) new bottom rollers and two
(2) rebuilt; rebuilt muster clutch
and repaired steering clutches;
repaired final drives with new
seals and bearings; rebuilt water
pump and starting engine bendix.
Excellent machine for a reasonable price. "CERTIFIED BUX."
\$18,500 FOB Clarkaburg, W. Va. able price. "CERTIFIED BUY." \$18,500 FOB Clarksburg, W. Va.

Item 157-P550. Caterpillar Mod-D8 with Control Unit and Item 157-P550. Caterpillar Modell D8 with Control Unit and Straight Blade. Rebuilt steering clutches; relined brakes; replaced left hand bull gear, union, bearing races, seals and gaskets and right hand flange, seals and gaskets in the final drive. Replaced priner covers; replaced R II pinion covers; replaced R. H. sprocket rim; replaced 7 resprocket rim; replaced 7 re-built bottom rollers; adjusted valves on engine; replaced exhaust stack; replaced cams on master clutch; replaced to transmission shaft bearings; machine is ser-viced, steam cleaned and painted. "CERTIFIED BUY." \$7500.00 FOB Pittsburgh, Pa.



Hercules hydraulic batch trippers mount under the body floor. Inset shows convenient location of controls in truck cab.

instantly released. Partitions are re-locked by the driver while returning to the batching plant. Labor cost savings are also claimed for the hydraulic trippers since the man formerly used for hand tripping at the paver can be put to work elsewhere on the job. Safer working conditions are said to be afforded by removing this man from the hazardous area around the skip and from the path of fast-moving batching trucks.

Hydraulic tripping units, one for each partition, mount under the body floor and are completely confined within the depth of a 4 in. crossmember. A compact valve manifold, installed under the truck dash, is used by the driver for releasing and re-locking the batch partitions. Manifold and tripper units are connected by one-piece flexible lines to minimize possibility of leaks, the manufacturer states. The trippers are powered by the regular hoist pump. A diversion valve, lever-operated from the truck cab, directs hoist pump output to the trippers or the hoist. as required. The hoist holds at any position when the diversion valve is switched to tripper operation.

The trippers, center - mounted under the partitions to prevent binding, feature simple, rugged construction to assure trouble-free operation, it is claimed. Operating mechanism is offset from lock opening in floor to avoid clogging with cement or fine aggregate. Cab controls are identified by number and knob position indicates partitions tripped, to prevent doublebatching.

The manufacturer states that by using tandem axle trucks with Hercules front-mounted telescopic hoists and hydraulic tripper-equipped bodies handling 4 or 5 batches in place of smaller trucks, faster paving schedules can be maintained with a 20% reduction in batching truck investment. On a 3-paver operation, labor savings are said to offset tripper cost in less than a month.

For further information, contact local Hercules distributors, or write direct to Hercules Steel Products Company, Galion, Ohio.

A new scholarship in mining engineering at the University of Illinois has been announced by D. W. Buchanan, Jr., Chicago, president of Old Ben Coal Corporation.

The purpose of the scholarship in to encourage young men to recognize the career opportunities of the resurgent coal industry of the Midwest and to assist them in securing technical education which shall fit them for some phase of the industry. Employees and sons of employees of Old Ben Coal Corporation and residents of Illinois coal producing areas are given preference for selection over other applicants. The recipient must graduate in the upper one - third of his high school class and satisfy the entrance requirements of the University of Illinois College of Engineering.

It is the intent of the company to award an additional scholarship each year until four Old Ben scholarships are in effect. Special provisions have been made permitting transfer to mechanical or electrical enginering curricula at a later date under certain conditions approved by both the Uniersity and the company. Each scholarship has a cash value of \$500 per year. Complete information may be obtained from the coal company or from A. J. Janata. executive assistant to the president, University of Illinois, Urbana.



FRANK A. DUNHAM

Frank A. Dunham, Pittsburgh Parts Manager for Beckwith Machinery Company for the past two years, has been named Field Parts and Service Representative covering Western Pennsylvania and Northern West Virginia.



RANDALL F. HALL

Mr. Dunham replaces Mr. Randall F. Hall who has joined the engine Sales Department under the direction of Mr. W. T. Redman, Engine Sales Manager.

Prior to joining the Engine Sales Department, Mr. Hall not only served as Field Parts and Service Representative for Beckwith Machinery Company but held the position of Assistant General Parts Manager for two years

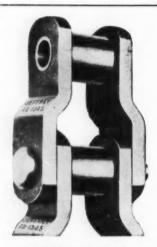
A compact, lightweight industrial engine, reputed to provide more power per pound than ordinary engines of comparable horsepower, is announced by Fageol Products Division, Twin Coach Company.

Known as the Fageol 44, the engine produces up to 45 hp @ 5500 rpm, with running engine weight as low as 160 lbs. Power-to-weight ratio of 3.55 lbs/hp is attained, the manufacturer says. Extremely compact, the 44 cu. in. displacement engine measures only 23% in. long including SAE No. 5 bell-housing, 15-9/16 in. wide and 23% in. high.

According to the manufacturer, exceptional fuel economy and high power output in relation to size and weight make the Fageol 44 ideal for use in air-borne equipment and industrial applications where compact size and light weight are important factors in power selection. Current usages are said to include farm and hoisting machinery, lift trucks, tow tractors, construction equipment, fire pumpers, portable generators and classified applications.

The Fageol 44 is a 4 cycle, 4 cylinder, water cooled power plant, featuring 9:1 compression ratio and overhead valves operated by a gear-driven overhead camshaft. Cylinder head is cast integral with block, eliminating head gasket difficulties it is claimed. Other quality features, ordinarily found only in larger engines, are said to include full pressure lubrication, built-in oil cooler, removable water jacket side plates on both sides of the block, statically and dynamically balanced crankshaft and flywheel forged steel connecting rods and camshaft, precision insert bearings, two-piece valves with

(Continued on Page 36)



JEFFREY CHAIN IN STOCK

Need JEFFREY replacements quickly? Standard parts carried in stock

JEFFREY CHAIN has maximum strength . . minimum weight . . and added reserves for long periods of normal wear plus shock from unexpected overloads.

Northeastern and Zanesville Supply Companies are also headquarters for MacWHYTE Wire Rope, DIAMOND Roller Chains, Sprockets and Flexible Couplings, CONVEYING Idlers, Belting, and all sizes and types of BRAKE LINING and friction materials.

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WHAT'S RIGHT LEFT

THE service LEFT in used equipment must be priced RIGHT, or an equipment dealer finds himself out of step with his customers in no time at all. Our business has marched along briskly for years and we're convinced that our customers know we price fairly.

WE OWN WHAT WE ADVERTISE

Buy from the largest stock of good mining equipment in America. Includes all types of Joy Loaders, Shuttle Cars, Cat Trucks, Cutting Machines, Locomotives, Belt Conveyors, Chain Conveyors, Substations, etc. 3—100KW, G. E. TCC-6's, 275 volt, Rotary Converters.

JOY EQUIPMENT - REBUILLT

-Joy 20BU Loader, latest type.

-Joy 14BU Loaders, low pedestal, 7AE.

Joy 14BU Loaders, medium pedes-tal, 7 RBE.

1—Joy 14BU Loader, high pedestal. 2—Joy 12BU Loaders, 9E, latest type.

-Joy 11BU Loaders.

-Joy 11BU Loader, latest type

-Joy 8 BU Loaders, 250 volt DC. -Joy 8 BU Loader, 34" overall height,

-Joy 8BU Loaders, 220 volt AC. -Joy curved bar heads, complete.

1-Goodman 660 Loader on cats, excellent.

-Joy 6SC Shuttle Car, rebuilt. -Joy 5SC Shuttle Car, rebuilt.

-Joy 32E9 Shuttle Cars.

Joy 32E10 Shuttle Cars, rebuilt.
 Joy 32E15 Shuttle Cars, rebuilt.
 Joy 32E16 Shuttle Cars, rebuilt.

-Joy T-1 Standard Cat Trucks, 220 AC

-Joy T-1 Standard Cat Truck, 250 DC.

1—Joy 5B1 Baby Machines, 250 vt. DC. 1—Joy 5B1 Baby Machine, 250 volt AC.

4—Joy 11B Cutting Machines, like new. 1—Joy 7B Cutting Machine, like new. 3—Goodman 512 Machines with Bugdusters.

Goodman Machine on Cats, 31" high. All hydraulic.

-Goodman 512 Cutting Machine, perfect.

-Goodman 512 Cutting Machines, 220 volt AC.

Jeffrey 29UR Cutting Machine. Universal head — cuts anywhere in seam. 38" high on rubber tires. Perfect.

-Lee Norse low vein Machine Carriers.

LOCOMOTIVES

2—Jeffrey MH-2154's, 15 tons, perfect. 42" Ga.

Jeffrey, 13 ton, type MH-110, 36", 42" and 44" Ga.

3—Jeffrey, 10 ton, type MH-78, 42" and 48" Ga.

12-Jeffrey, 6 ton, type MH-88, 42", 44" 48" Ga.

2-Jeffrey, 8 ton, type MH-100, armor plate frames.

-Jeffrey, 6 ton, type 2186, 22" above rail, perfect.

-Jeffrey, 4 ton, type MH-96, 42", 44" and 48" Ga.

2-G. E. 4 ton, type 825 Locomotives, 22" high. 10—G. E. 6 ton, types 801, 803, 821 Lo-comotives, 42", 44" and 48" Ga.

1-G. E. 8 ton, type 822 Locomotive, 44" Ga.

3—G. E. 10 ton, type 809 Locomotives, 42", 44" and 48" Ga.

-Goodman, 4 ton, 8-30 Locomotive, 22" above rail.

Goodman, 6 ton, Locomotive, 26" high.

SEND US YOUR INQUIRIES

2-Goodman type 33, 6 ton, 44" and

3-Goodman 8 ton, type 32A, 36", 44" 48" Ga.

-Westinghouse type 902, 4 ton, 42" and 48" Ga.

-Westinghouse, type 904, 6 ton, 44" and 48" Ga.

-Westinghouse, type 906, 44" and 48" Ga.

2-Westinghouse, type 907, 10 ton, 44" 48 " Ga.

TIPPLE EQUIPMENT

-Cedar Rapids portable super Screening Plant,

Allis Chalmers 5' x 14' Rippflo Vibrator.

x 14' Robbins double deck Vibrator.

4' x 10' Robbins Gyrex Vibrator, McNally Pittsburgh all steel Tipple,

three track, perfect. Feeders, Drag Conveyors and Loading Booms.

CUTTING MACHINES

-Jeffrey 29 UR Universal on rubber.

Goodman 512-G-3, 220 A.C. Goodman on cats, 31" overall height.

Baby Goodman 212, rebuilt.

-Goodman 312, 18" high. -Goodman 512's with Bugdusters,

Goodman 512's, rebuilt or as re-

moved from service.

-Joy 5B1 Baby Machines, 250 vt. DC. -Joy 5B1 Baby Machine, 220 vt. AC.

-Goodman 512 Cutting Machines, 220 volt AC.

Goodman 12AA's and 112AA's,

2-Goodman 324 Slabbers.

15-Jeffrey 35L's, like new, 17" high. -Goodman 724 Slabbers.

2—Jeffrey 35L's, on low vein trucks. 15—Jeffrey 35B's and 35BB's.

-Jeffrey 29B's on track. -Jeffrey 29C's, track mounted.

-Jeffrey 29L, on track, perfect. -Sullivan CR-10's, 15" high.

LOADING MACHINES

Joy Loaders, all types.Jeffrey 61 CLR's on rubber, 26".

-Jeffrey L-500 Loaders Myers Whaley No. 3 Automat

Loaders. -Clarkson Loaders, 26" above rail.

CONVEYORS -Robbins 30" Conveyor, 1000'. -Joy 30" Belt Conveyors, 10 to 15

H. P. 3,000' Conveyor Belt 30".

2—61EW Elevating Conveyors. 2—61WH 15" Room Conveyors, 300 ft.

-Joy Ladel UN-17 Shakers. 10—Goodman G-12½ and G-15 Shakers. 3—Long 400 DBH 15" Chain Conveyors, 25 H. P. Motor - new.

CONVERTERS AND DIESEL PLANTS -50KW, G. E. TC-6, 275 volt, Rotary Converter.

-150KW G. E. HCC-6, 275 volt Rotary Converter.

-150KW, 6 phase, Allis Chalmers Ro-

tary Converters, 275 volt DC, perfect.

-200KW, G. E. HCC-6 Rotary Converter, 275 volt DC.
-300KW G. E. HCC-6 Rotary Con-

verters, 275 DC. -200KW Westinghouse Rotary Con-

verter, 275 DC. 200KW, Allis Chalmers Rotary Converter, 6 phase, 275 DC, perfeet.

(Ali the above wit h6900/13000 and or 2300/4000 primary transformers.)

-65KW MG Set, General Electric, 275 DC volt, 220 volt AC. -150KW MG Set, General Electric

and Westinghouse.

200KW MG Set, Westinghouse, re-

-150KW, Allis Chalmers MG Set, 275 DC volt, excellent. 220-440 volt AC.

300KW Westinghouse, 600 volt, MG Set, rebuilt.

500KW Westinghouse, 275 volt, MG Set, perfect.

Cummins 125KW Diesel with 250 volt DC Generator.

1-700 H. P. Shaft Hoist, complete.

Complete steam plant, will sell all or any part.

Boilers, like new, 1100 H. P. and 500 H. P. Also transformers, turbines, etc.

Complete Tipples with Cleaning Plants.

MISCELLANEOUS

10—Air Compressors, 1 H. P. to 40 H. P. 40—Mine Pumps, all types.

Barber Green self propelled Bucket Elevators.

Pipe, Plastic Steel, Transit, all sizes 1" to 6".

Mine Cars, drop bottom, 42" Ga.

-Mine Cars, Drop Bottom, 44" Ga.

-Mine Cars, 48" Ga., Drop Bottom,

20" above rail. Mine Cars, 18", end dump, 44" Ga. 90-Mine Cars, end dump, 20" high,

48" Ga. Brown Fayro HKL and HG Car Spotters

1-12 ton Differential Slate Larry.

Incline Hoists, 25 to 50 H. P. 1-Jeffrey 6 ft. Aerodyne Fan. Storage Tanks, 10,000 gallon. Storage Tank, 8,000 gallon.

2—Storage Tanks, 4,000 gallon. Five Gallon G. I. Cans.

400-Tons Rails, 25 lbs. to 60 lbs. 10-Tons Copper Trolley and Feeder.

-Transformers from 1 to 2.000 KVA, 110 to 13,000 primary volts.

400 Electric Motors, 3 to 250 H. P. Huge Stock of Mine Supplies.

If you don't contact us before you trade - We both lose money.

THOUSANDS OF OTHER ITEMS

DEPEND ON

MAJOR LINES

Each year more and more users of Stripping equipment find it pays to depend on Allegheny for all their equipment needs. At Allegheny are exceptionally well qualified men to service, repair and rebuild your machines, with large stocks of parts at hand.

PETIBONE-MULLIKEN PERFORATED DRAGLINE BUCKETS



PETIBONE-MULLIKEN SPEEDBALL TRACTOR SHOVELS



LINK BELT SPEEDER
STRIPPING AND COAL
LOADING UNITS

MAYHEW BLAST HOLE DRILLS



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SERVICE

PARTS

RENTALS

ALLEGHENY MACHINERY SALES CO., INC.

600 GREENTREE ROAD

PITTSBURGH 20, PA.

WAInut 2-0632



NEW M-S-A PERMISSIBLE MINE LIGHTING SYSTEMS PROMISE GREATER PRODUCTIVITY AND FEWER ACCIDENTS FOR MINES



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The Anderson Equipment Company, Bridgeville, Penna., is now a parts distributor for White Diesel Engine Division of the White Motor Company, Springfield, Ohio.

According to Paul K. Smith, Anderson vice president, the company will stock parts for White's 40C-S-6 engine. The engine is used in shovels and drags by coal strippers and contractors.



Frank Burnside, Wilkes-Barre, Pa., department store executive, who was one of three new members of the Board of Directors of the Glen Alden Corporation elected during the firm's annual meeting in Wilkes-Barre yesterday, April 24. Others were Dr. John R. Steelman and Thomas Stokes.

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